It appears that the application of an external potential will attract the Helmoholtz layers of solvated cations towards the surface of the cathode. This attraction will allow electrons to escape from the cathode into the electrode/electrolyte interface. These electrons will be accelerated across the positive ion-rich interface and acquire high enough energy to bring about high energy reactions. Thus the electrode surface and its vicinity acquire the nature of a multiphase, chemically reactive, thermal boundary layer during the electrode glow phenomenon and offer most favourable situation to bring about certain chemical reactions which otherwise require more elaborate experimentation. Further work in that direction is in progress.

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A note on the rotational isomerism in cysteamin

S K Nandy and G. S Kastha

Optics Department,
Indian Association for the Cultivation of Science,
Calcutta-700032.

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It is known that many molecules of mono- and di-alkanethiols exhibit rotational isomerism and the number of such rotational conformers are different for different compounds. Thus in 1,2-ethane dithiol (Hayashi 1965), 1-propanethiol (Torgrimsen & Klaeboe 1970) and 2-mercaptoethanol (Nandy *et al* 1973*a*) there are two rotamers *viz.*, trans and gauche, in the liquid phase in each case, while in liquid 1, 2-propanedithiol (Nandy *et al* 1973b) there are three stable conformers. In

liquid *n*-butanethiol (Nandy *et al* 1973c) though a large number of conformers is possible, the trans and gauche isomers are found to be the most important.

Cysteamin or *β*-aminoethanethiol is an interesting compound because in its molecule both the substituents NH_2 and SH in the $-CH_2-CH_2-$ frame are capable of different relative configurations in addition to the possible orientations of one CH_2 group with respect to the other. Thus, this molecule is expected to exist in a number of rotational isomeric forms, whose number and stability may be studied from the Raman and infared vibration spectra of the compound in different phases. In this note a preliminary report of such an investigation is presented.

The Raman spectrum of cysteamin in water solution (figure 1) shows two strong lines at 663 and 760 cm^{-1} of which the former is absent in the solid state spectrum of the compound From a comparison with other mercaptoalkanes, the lines 663 and 760 cm^{-1} are assigned to the C-S stretching vibrations in the rotameric molecules If the NH_2 and SH groups are regarded to be rigid there will be only two rotameric forms around the CH_2-CH_2 bond. In that case the line 663 cm^{-1} is attributed to the C-S stretching vibration in the gauche and 760 cm^{-1} to a similar vibration in the trans isomer in such ideal molecules.

Such conclusions receive further justification from the following considerations also. The spectrum of the solution of cysteamin in water (figure 1) shows two medium strong Raman lines at 391 and 452 cm^{-1}. In the solid state spectrum the former is absent and the latter is found to appear weakly. From Raman studies is some primary aliphatic amines (Wolf & Ludwig 1964), the Raman shift 456 cm^{-1} in liquid *n*-propylamine has been assigned to the C—C—N deformation in the trans isomer while in ethylamine the shift 404 cm^{-1} in the gaseous state Raman spectrum has been attributed to a similar vibration of this molecule Considering all these facts together the lines 452 cm^{-1} and 391 cm^{-1} in the molecules of cysteamin are assigned to the C—C—N deformation vibration in the two rotameric forms, the former belonging to the trans while the latter to the gauche isomer of the ideal molecule.

Detailed assignment of the vibrational spectra of the molecule will be published elsewhere

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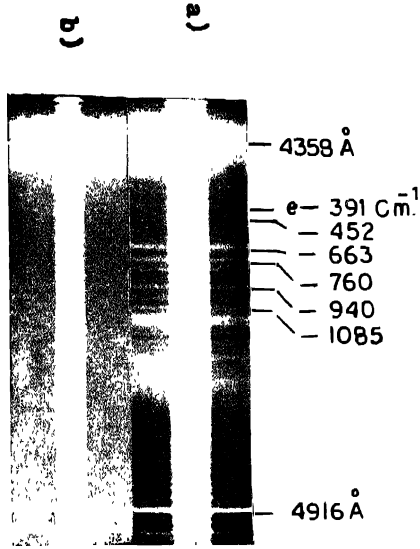

Fig. 1. Raman spectra of cysteamin.
a) 5% solution in water.
b) Solid state.